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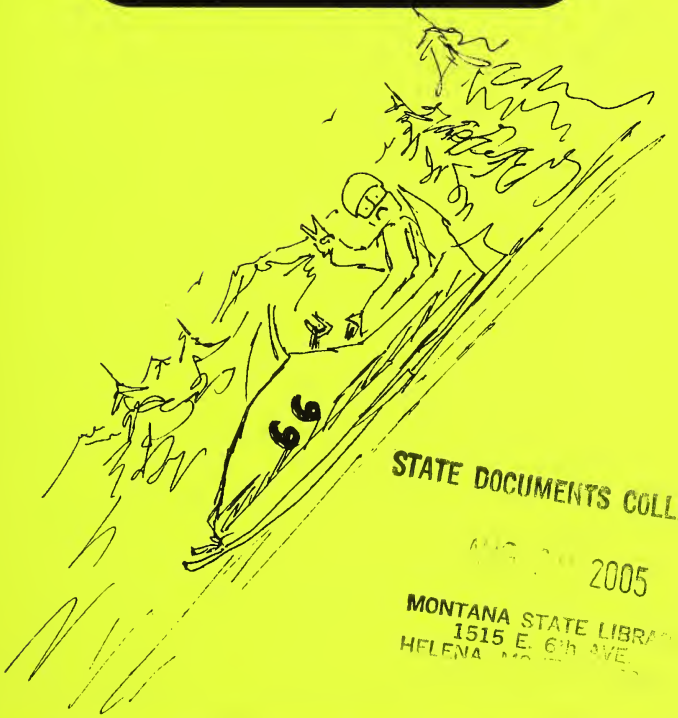
TANA'S TAKE-ALONG

WINTER SURVIVAL

HANDBOOK



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MONTANA'S TAKE-ALONG WINTER SURVIVAL HANDBOOK

Written by Larry Akers, Emergency Management Specialist

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For more copies of this book, contact your county Disaster and Emergency Services Office (listed in the government section of your telephone book) or call 800/714/7296.

Introduction

The intent of this publication is to provide basic survival information that can save lives.

The residents of Montana are great outdoors people, whether it's for work or for pleasure. Because of the size of The Big Sky State, Montanans do a great deal of traveling in the pursuit of their work and play. A large portion of this booklet is devoted to tips related to safe winter driving and what to do if stranded.

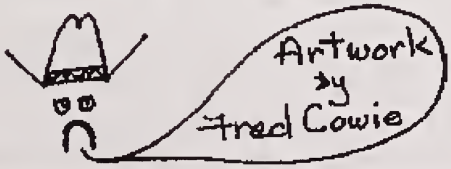
Did you know that a hubcap can save your life?

Each winter hundreds of thousands of Montana residents and visitors take to our winter wonderland in pursuit of the most fantastic hunting available anywhere. Our ski resorts and cross country trails are second to none. With the advent of the snowmobile and the all-terrain vehicle, remote areas are now only a short time away. But, when all this modern technology fails, it may be a very long walk out.

Do you know how to make a shelter with a jackknife and piece of string?

Ride along as we take you safely down the highway on a winter journey. Enjoy a snowy outing through Montana's breathtaking landscape, confident you have the gear to weather any storm. Allow us to give you some tips on weathering a storm at home, and some thoughts about caring for pets and one of Montana's greatest economic assets, her livestock.

It is with a great deal of pride that the Montana Division of Disaster and Emergency Services and the Montana Department of Transportation present this handbook.



Montana Driving Hazards

Montana has one of the highest highway fatality rates in the nation. Some of the very things that draw people to Montana pose driving hazards you need to be aware of.

- *Most fatal crashes* involve a single vehicle leaving the road and overturning or hitting something.
- In 2003 alone, over 500 drivers fell asleep at the wheel and were involved in crashes. Distances between towns can be long and travel can be monotonous. Take a break, whether at a community or a rest area. If you drink, have a sober designated driver.
- Twenty to forty percent of all crashes occur under icy or snowy conditions. Severe weather and road conditions can happen in any month of the year.
- The wildlife that draws so many visitors poses a formidable road hazard. Hundreds of collisions with animals occur each year. They're most common in early morning and late afternoon and evening when animals are moving from forage to cover.
- Night-time crash rates are much higher than those that occur during the day. Realize your headlights limit your sight distance. Adjust your speed to account for reduced visibility and the very real possibility of encountering an animal, a stalled vehicle, or other objects in your path.

For all emergencies, dial 911 (statewide)!

If you drink, please do not drive, use a designated driver.

To report drunk, erratic or unsafe drivers call 800/525-5555 (Montana Highway Patrol. This is NOT a road report or general information number!)

According to Montana State Law, it is now mandatory that all passengers use seatbelts.

Warnings

The winter wonderland that makes Montana so beautiful can also be life threatening. Winter blizzards, heavy snows, ice storms, freezing rain and high winds can be a serious hazard to our citizens, whether at work or play. One of the best defenses is to keep informed. By understanding and observing storm warnings, we can make adequate preparations to lessen the impact of hazardous weather on ourselves, our property, pets, and livestock. To take full advantage of weather forecasts, know the specific meaning of the terms commonly used:

- **WATCH vs. WARNING:** These two terms cause more confusion than all the rest. A watch simply means that weather conditions are favorable for a storm, blizzard, tornado or whatever. A warning means, "It's here, partner."
- **WINTER STORM WATCH:** Severe winter weather conditions may affect your area (freezing rain, sleet, or heavy snow).
- **WINTER STORM WARNING**: Severe winter weather conditions are imminent.
- **HEAVY SNOW WARNING:** A snowfall of at least six inches in 12 hours or eight inches in 24 hours is expected. (Heavy snow can mean lesser amounts where winter storms are infrequent.)
- **BLIZZARD WARNING:** Considerable falling and/or blowing snow and sustained winds of at least 35 miles per hour are expected for several hours. Most of the snow in a blizzard is in the form of fine powdery particles which are whipped in such great quantities that at times visibility is only a few feet.
- **HIGH WIND WARNING:** Sustained winds of at least 40 miles per hour or gusts of at least 50 miles per hour are expected to last for one hour. These thresholds are higher for the upper Yellowstone Valley and along the eastern front of the Rockies.
- **WINTER WEATHER ADVISORY:** Weather conditions are expected to cause significant inconveniences and may be hazardous. If caution is exercised, these situations should not become life threatening.

FOR CURRENT WEATHER INFORMATION

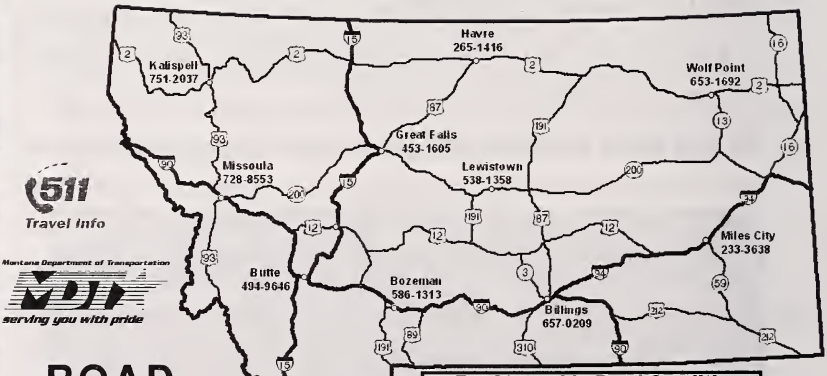
Billings 652-1916
National Weather Services (NWS)
NWS Billings http://www.wrh.noaa.gov/billings/

Glasgow 228-4042
NWS Glasgow http://www.wrh.noaa.gov/Glasgow/

Great Falls 453-5469
NWS Great Falls http://www.wrh.noaa.gov/greatfalls/

Helena 443-5151
Kalispell 755-4829
Missoula 721-3939
NWS Missoula http://www.wrh.noaa.gov/missoula//

For access to any NWS homepage in the United States
http://nimbo.wrh.noaa.gov/wrhq/nwspage.html



511 Travel Info

Montana Department of Transportation
MDT
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ROAD REPORTS

Road Conditions in the vicinity of 10 Montana cities are described in reports available at the numbers shown on the map. A detailed report beginning with Interstates provides statewide conditions beginning at 6:45 a.m. with updates as conditions change. Reports are provided seven days a week, generally from the end of October until the end of April.

For Statewide Road Conditions
Dial 511 or 1-800-226-7623
1-800-335-7592 (TTY)

Road Information for Nearby States & Provinces

Idaho	(888) 432-7623
North Dakota	(866) 696-3511
South Dakota	(605) 367-5707
Utah	(801) 964-6000
Washington	(800) 695-7623
Wyoming	(307) 772-0824
Alberta	(780) 471-6056
British Columbia	(604) 660-9770
Saskatchewan	(306) 787-7623

National Weather Service

Billings	(406) 652-1916
Glasgow	(406) 228-9625
Great Falls	(406) 453-5469
Helena	(406) 443-5151
Kalispell	(406) 755-4829
Missoula	(406) 721-3939

Emergencies Dial 911

For additional traveler information
www.mdt.state.mt.us/travinfo

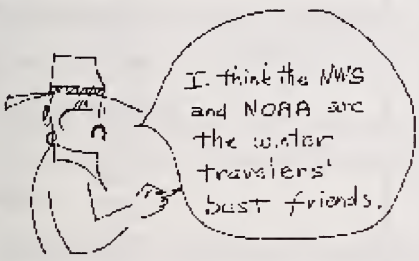
Produced as a public service by MDT's Maintenance Division. Information on costs available by request. Phone (406) 444-0468 or write PO Box 201001, Helena, MT 59620-1001.

Studded tires are legal in Montana October 1–May 31.

NOAA Weather Radio

Newspaper, radio and television are all good sources of weather data. However, if you want the most accurate and timely information, go to the source itself. You can listen to a weather radio designed to pick up broadcasts of the National Oceanic and Atmospheric Administration (NOAA).

NOAA Weather Radio provides continuous broadcasts of the latest weather information directly from the National Weather Service Offices and these broadcasts are tailored for your specific area. A number of commercial manufacturers offer weather radios designed specifically for receiving NOAA's high frequency transmissions. NOAA Weather Radio broadcasts can usually be heard as far as 40 miles from the transmission site.



The following NOAA weather frequencies are used in Montana:

1	162.400 MHz
2	162.425 MHz
3	162.450 MHz
4	162.475 MHz
5	162.500 MHz
6	162.525 MHz
7	162.550 MHz

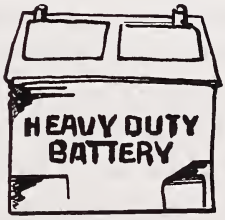
Commercial/Public Radio Stations

Anaconda	KANA-AM	580
	KGLM-FM	97.7
Baker	KFLN-AM	960
Belgrade	KGVW-AM	640
Belgrade/Bozeman	KSCY-FM	96.7
	KXLB	107
Billings	KBBB-FM	103.7
	KBEX-FM	105.1
	KBLG-AM	910
	KBUL-AM	970
	KCTR-FM	102.9
	KEMC-FM	91.7
	KGHL-AM	790
	KGHL-FM	98.5
	KKBR-FM	97.1
	KMHK-FM	95.5
	KMZK-AM	1240
	KRKX-FM	94.1
	KRSQ-FM	101.7
	KRZM-FM	96.3
	KURL AM	730
	KYYA-FM	93.3
	KZRY	107.5
Bozeman	KBOZ-AM	1090
	KGLT-FM	91.9
	KOBB - AM	1230
	KOBB-FM	93.7
	KMMS-AM	1450
	KMMS-FM	95.1
	KPKX-FM	97.5
	KZLO-FM	99.9
Butte	KAAR-FM	92.5
	KBOW-AM	550
	KMBR-FM	95.5
	KMSM-FM	106.9
	KOPR-FM	94.1
	KUFM-FM	91.3
	KXTL-AM	1370
Chinook	KRYK-FM	101.3
Deer Lodge	KDRG-AM	1400
	KQRV-FM	96.5
Dillon	KBEV-FM	98.3
	KDBM-AM	1490
Glasgow	KLAN-FM	93.5
	KTZ-AM	1240
Glendive	KDZN-FM	96.5
	KGLE-AM	590
	KXGN-AM	1400
Great Falls	KAAK-FM	98.9
	KEIN-AM	1310
	KGFC-FM	88.9
	KLFM-FM	92.9
	KMON-AM	560
	KMON-FM	94.5
	KQDI-AM	1450
	KQDI-FM	106.1
	KTZZ-FM	93.7
	KXGF-AM	1400
Hamilton	KBAZ-FM	96.3
	KLYQ-AM	1240
	KXDR-FM	98.7
Hardin	KHDN-AM	1230
Havre	KOJM-AM	610
	KPQX-FM	92.5
	KXEI-FM	95.1
Helena	CARROLL RADIO	88.5
	KBLL-AM	1240
	KBLL-FM	99.5
	KCAP-AM	1340
	KHKR-FM	104.1
	KMTX-AM	950
	KMTX-FM	105.3
	KVCM-FM	103.1
	KZMT-FM	101.1
Kalispell	KALS-FM	97.1
	KBBZ-FM	98.5
	KDBR-FM	106.3
	KGEZ-AM	600
Kalispell/Whitefish	KJJR-AM	880
Kalispell	KKMT-FM	95.9
	KOFI-AM	1180
	KOFI-FM	103.9
Laurel	KBSR-AM	1490
Lewistown	KLCM-FM	95.9
	KXLO-AM	1230
Libby	KLCB-AM	1230
	KTNY-FM	101.7
Livingston	KPRK-AM	1340
Malta	KMMR-FM	100.1
Miles City/Forsyth	KIKC-AM	1250
	KIKC-FM	101.3
Miles City	KATL-AM	770
	KKRY-FM	92.5
	KMTA-AM	1050
Missoula	KBGA-FM	89.9
	KGGL-FM	93.3
	KGRZ-AM	1450
	KGVO-AM	1290
	KLCY-AM	930
	KMSO-FM	102.5
	KUFM-FM	89.1
	OR	91.5
	KYLT-AM	1340
	KYSS-FM	94.9
	KZOQ-FM	100.1
Plains	KPLG-FM	91.5
Plentywood	KATQ-AM	1070
	KATQ-FM	101.1
	KERR-AM	750
Red Lodge	KMXE-FM	99.3
Ronan/Kalispell	KQRK-FM	92.3
Scobey	KCGM-FM	95.7
Shelby/Conrad/Cut Bank	KSEN-AM	1150
	KZIN-FM	96.7
Sidney	KTHC-FM	95.1
West Yellowstone	KEZQ-FM	92.9
	KWYS-AM	920
	KWYS-FM	102.9
Williston, North Dakota	KEYZ-AM	660
	KYYZ-FM	96.1
Wolf Point	KVCK-AM	1450
	KVCK-FM	92.7

Taking Care of a Friend

Your automobile can be your best friend or worst enemy, depending on your preparations. Many people totally ignore the maintenance of their car or pickup, which may cause a very untimely breakdown. Following good common sense and the manufacturer's preventive maintenance schedule will go a long way to prevent you from being stranded. Make sure everything on this check list is in a good state of repair all year.

- **Cooling System:** Flush and protect the radiator and engine to well below zero.
- **Heater, Defroster, Wipers:** These are not only for comfort but for safety as well. Check and repair before cold weather.
- **Fuel System:** Replace fuel and air filters before cold weather. Keep water out of the system by using additives and by maintaining a full tank of gas.
- **Battery & Ignition System:** Should be in top condition,with clean battery terminals. Minor deficiencies such as dirty battery terminals or old, worn parts will be greatly magnified in cold weather.



- **Lights:** Front and rear should be checked for serviceability. These are safety features for you as well as those around you.
- **Exhaust System:** Check for leaks and crimped pipes; repair or replace as necessary. Carbon monoxide poisoning is deadly and usually gives no warning.
- **Tires:** Good tread is a must. Studded tires can be used in Montana from Oct. 1 until May 31. They are 218% better than conventional tires. Chains are 630% better than conventional tires. (See chart on Page 16).
- **Brakes:** Check wear and fluid level. A brake which grabs on ice is a killer.

Getting Going

Even with the best maintained vehicle, winter conditions present a variety of aggravating problems. Sometimes the problems can start with trying to get into the car. Freezing rain or moisture and a sudden temperature drop can freeze locks. There are a number of lock thaw products on the market, most of which work best as a preventative measure. Try heating the key with a lighter. Another excellent source of heat is an electric hair dryer, (but don't let your spouse catch you).

Starting a Cold Car

Starting it at below-zero temperatures is a terrible thing to do to your car. In addition to a well-tuned engine and good fuel, heat is the best solution for cold weather starting problems. Engine block heaters heat and some even circulate the water. They also keep the oil a little warmer, which greatly reduces engine start-up wear. Even leaving a trouble light on overnight under the hood can keep a little of the cold out.

If your car won't start and you must use it, you may require a battery boost. Check your battery fluid first. (If the fluid is frozen, chances are your battery is ruined and boost starting will not help.)

Next, find someone willing to help with a battery of the same voltage. Leave the battery caps off both batteries. Hook up the booster cables to the live battery first, then hook the positive cable to the positive post of the dead car. Last, hook the negative cable to a ground on the dead car (not the negative post); this will greatly reduce the chance of sparks and a resulting explosion.

Run the engine of the live car at fast idle for a few minutes, if possible, to partially charge the dead battery. Start the dead car and remove the cables in reverse order.

Use extreme caution with starting fluid. Most starting fluids contain ether, which is very volatile. It is best to have a fire extinguisher available if you attempt to use this product. In addition to the chance of fire, the ether has a tendency to

wash the lubricant from the pistons, causing tremendous wear on the pistons and cylinder walls of an engine.

And now for a note about water in your fuel system. Water can enter the fuel system by condensation. There is also the possibility you may purchase fuel which has been contaminated with water. A solution to these problems is a product commonly called deicer; note, there's a difference between diesel and gas deicer. A good preventative measure is to periodically add a can to your fuel tank.

Winter Driving Techniques

Today, the number of four-wheel drive vehicles is at an all-time high in Montana. However, two-wheel drive passenger cars still top the vehicle registration lists. With the relatively salt-free environment of our state and the mechanical genius of our people, many of the older rear-wheel automobiles are still on duty. Driving characteristics vary greatly among 4X4, front-wheel drive and rear-wheel drive vehicles and are beyond the scope of this manual.

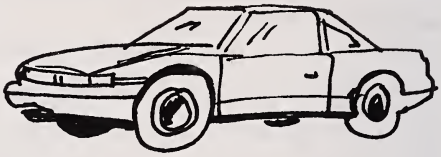
For our discussion, we shall deal primarily with the conventional rear-wheel drive truck or passenger car.

- When attempting to pull out or while going up a slippery hill, use the highest gear possible. This technique applies less power to the drive wheels resulting in less potential of wheel spin. Don't gun the motor! Once your wheels begin to spin, you are in trouble.

  If you have good snow tires and chains, most hills can be negotiated. Coming down a slippery hill requires judicious use of the vehicle's gears. A lower gear can slow your momentum. This is good because you do not have to use the brake as often and there will be less chance of locking the wheels.

  Caution must be used, however, as too low of a gear can cause too much back pressure in the engine, resulting in too much drag, which can also lock the drive wheels.

- Many of the new automobiles have an ingenious safety feature called anti-lock brakes. These are designed to automatically pump the brakes to prevent wheel lock-up. Most vehicles on the road do not have this feature. If you do lose control, try pumping your brakes with short, repeated pumps instead of just pushing the pedal to the floor and holding it there.



  If this method fails and it seems you are destined to hit something, you may have a choice. A nice snowbank is better than ramming another car or sliding through a crowded intersection.

- Winter driving is different from summer driving in other respects. Ruts may form in the snow and ice and cause problems. Once in the rut, it is difficult to steer out of it. In an attempt to steer out of a rut, you may be thrown out of control in another direction. High centering your vehicle can also result from ruts or snow build-up under your car.

- Winter roadway width is usually narrower due to snow build-up. In this case, you do not have much margin for error in passing or meeting cars from the opposite direction.

- Roads that are intermittently dry and icy pose very interesting and dangerous driving problems. This situation calls for extreme caution, reduced speeds and more distance between you and other drivers.

- Winter driving has a detrimental effect on some drivers. It may make them more nervous, frustrated, tense and perhaps even aggressive. Some drivers, no matter what, will try to drive in winter as they do in summer. Thus, it is even more important to drive defensively and be extra alert to what is happening around you. Drive even further down the road than normal; this means, watch for the driver or the situation that is a wreck about to happen and allow enough stopping distance or maneuvering room.

- A misconception, which must be cleared up, concerns stopping distances of 4X4 and front-wheel drive vehicles. Pulling power has absolutely nothing to do with stopping distance. Lock the wheels of a 4X4 on ice and you still have four approximately 6" X 8" patches of rubber sliding down the highway. Many 4X4 and front-wheel drive owners are over-confident and that's just plain dangerous.

- Cruise control can become a killer on slick highways! With cruise control, the car either accelerates or decelerates to maintain a constant set speed. This works fine on dry pavement. However, on icy or snowpacked roads, the use of cruise control can cause accidents. The car may sense a need for increased power to maintain its set speed just as you enter an icy spot. This would have the same effect as if you suddenly stepped down on the accelerator. The result is almost always a break of traction of the drive wheels and a dangerous loss of control.

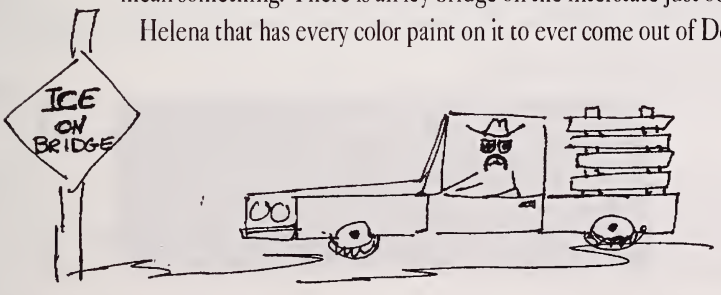
- If you do get stuck (before you go into the survival mode) there are a few things you can try. Above all remember, DON'T OVER EXERT! It's hard to keep your mind on getting unstuck while you are undergoing a heart attack.

  First, clear a path in front and behind your wheels. Get the sandbag out of your automobile survival kit and spread sand or gravel on the path you have just cleared. If you forgot the sand, try a floormat under the wheel, branches cut with the ax in your survival kit or just about any other thing you can think of to put under the wheels to give traction.

  Now try "rocking" yourself out. Accelerate forward until the car just begins to lose traction, then quickly move into reverse until the tires begin to break traction, then back the other way. You should gain a little ground each time and eventually break free. A good driver can master this technique with either a standard or automatic transmission; the trick here is timing between engine RPM and gear changes so you don't rip the universal joint out.

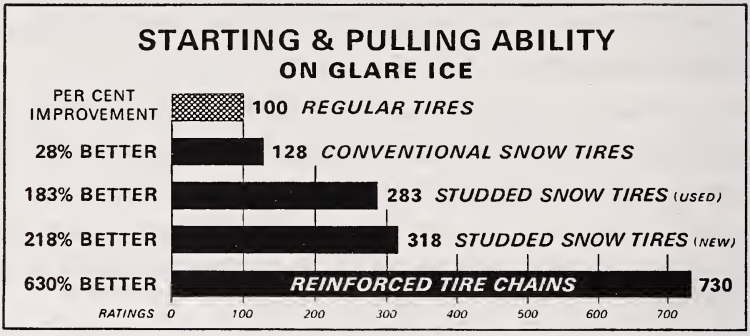
  Another idea is to gently accelerate with the emergency brake partially applied; this may prevent the drive wheels from losing traction quite as quickly.

- Bridge surfaces freeze before roads do. Yeah, yeah, most people have heard that so much and have seen the signs so often that it no longer means anything. However, when traveling down the highway at 65 mph thinking how cool you look passing everyone in the slow lane, and you hit one of these iced up bridges, it'll mean something. There is an icy bridge on the interstate just outside of Helena that has every color paint on it to ever come out of Detroit.



All About Tires & Traction

Probably more has been written on the subject of tires than any other part of the automobile. The problem is most of the literature is provided by the tire companies and their advertising claims just add to our confusion. Time was when we had a summer tire and a winter tire; now we have sort of a compromise called an all-season tire. Like most compromises, the all-season really isn't as good as either tire it was intended to replace. The all-season tread probably falls somewhere between the regular category and the conventional snow tire on the following chart:



This chart summarizes the test results conducted by the National Safety Council on a glare-ice course at Steven's Point, Wisconsin. These tests disclosed that conventional snow tires provided only a small improvement in pulling ability as compared with regular tires. Studded tires developed about three times the pull, while reinforced tire chains developed about seven times the pull of regular tires. Some drivers prefer to run studded or snow tires on all four wheels on their two wheel drive passenger cars. The rationale here is improved steering, handling and more predictable stopping.

A WORD OF CAUTION

Studded tires are only legal in Montana from Oct. 1 until May 31.

- No matter what tire you use, you'll have better luck if you take it easy. Don't spin your tires; spinning just causes friction, which turns snow to ice or digs you in deeper, so apply power gently.
- Keep the tire pressure at recommended levels for normal winter driving. When stuck, try letting some pressure out of the pulling tires; this puts more tread on the road and can really help. If you deflate for traction, re-inflate to normal pressure as soon as possible.
- The jury is still out on adding extra weight in the trunk. If done right it can increase traction. The negative side is the possibility of an ill-handling car, not to mention decreased gas mileage. If you do decide to add weight, don't overdo it. Make sure the weight is as close to being over the drive wheels as possible. Obviously, weight in the trunk of a front wheel drive vehicle is counterproductive.

Other Tips Before Your Trips

Okay, so you've listened to the weather forecasts, checked the road reports, performed your before-operations maintenance and developed a survival kit. Now you are ready to go, right? Wrong! There are a few more things you should consider:

- Let someone know when you are leaving. Advise them of the route you are taking and when you expect to arrive at your destination. It's like filing a flight plan for your automobile trip.
- If at all possible, travel in a convoy with someone else; there is safety in numbers.
- As you drive, listen to weather and travel information; road conditions can change mighty fast.
- As part of your pre-winter cooling system check, do not forget the heater and defroster. These are safety items as well as comfort items.
- Always keep a full tank of fuel. Stop often and fill up, especially if heading into sparsely populated country, like most of Montana. You are less likely to become stranded with a full tank. If you do become stuck, you will have enough

fuel to run the engine and heater. Also, keeping the tank as full as possible will minimize condensation in the tank.

- Make sure the oil is of a light weight or a multi-weight viscosity. Heavier weight oils congeal more at low temperatures, do not lubricate as well and cause hard starting.
- Make sure your headlights, taillights and windows are clean so you can see and be seen. Your headlights can become covered by snow or dirt so gradually that you are not aware of the loss of illumination. With the reduced visibility from a storm, you want someone behind you to see your brake and taillights.
- Winter travel on interstates or other major highways will lessen the likelihood of becoming stranded.
- If winter storm conditions exceed or even test your ability, seek refuge immediately. Don't try for the next town.

Automobile Winter Survival Kit

Winter travel, especially by passenger car, is serious business. You should always carry a survival kit. Your kit can be as extensive as you want, but you should include those items which would allow you to survive 12–24 hours without the benefit of the car heater. A recommended list might include:

- One sleeping bag or two or more blankets for every person in the automobile.
- Three-pound coffee can, which can be used to heat water.
- Matches and candles (a blanket over your head, body heat and the heat from a single candle can prevent freezing).
- Flashlight and extra batteries, good for signaling for help.

- Winter clothing such as, cap, mittens, heavy socks, gloves, coveralls, etc, (all of these items can be old or out-of-style items no longer worn).
- First-aid kit, including any special medications for you and your travelers.
- Bottled water. It will probably freeze, so allow expansion room in the container.
- High-energy foods; candy, nuts, raisins, sugar cubes, packaged condensed soups and hot chocolate, bouillon cubes; no perishables.
- Small sack of sand or kitty litter, which is good for traction.
- Shovel. One with a flat blade is preferable. Use caution in shoveling snow, as overexertion is not advisable in a survival situation.
- Basic tool kit, to include pliers, screwdrivers, adjustable wrench, tape and wire.
- Paper towels or toilet tissue, good for their designed purpose as well as for fire starter.
- Axe or saw, good for cutting wood for fire or branches to place under stuck tires for traction.
- Tow chain or strap. Also, a come-along is a handy device to recover your own vehicle.
- Spare tire. One with air works best.
- Wire and rope, which have a multitude of uses, including automotive repair.
- Starter fluid, extra oil, gas line deicer and battery booster cables.
- Signaling devices, such as railroad flares, which can be seen for miles. A distress flag can be made from a piece of hunter orange or other bright colored material. Learn more in the following "automobile parts can save lives" section.
- Don't forget your cell phone.

NOTE: Many of the items on this list can be stored in the can.

Automobile Parts Can Save Lives

Even if you did not complete your survival kit, a calm head and systematic evaluation and dismantling of your vehicle can save your life. Put these automotive parts to good use:

- A hubcap or sunvisor can be substituted for a shovel.
- Seat covers can be used as a blanket.
- Floormats can be used to shut out the wind or for a wraparound.
- Engine oil burned in a hubcap creates a smoke signal visible for miles. To start the fire, prime with a little gasoline which you can get from your tank with a wire and tissue or rag.
- Don't forget your horn. It can be heard as far as a mile downwind. (Three long blasts, ten seconds apart, every 30 minutes, is a standard distress signal.)
- A rearview mirror can be removed and will serve as an excellent signaling device.
- For warmth and signal, burn a tire. (Not on the car!) Release the air pressure, and use gasoline, oil, or any other means to ignite it.

If a Storm Traps You in Your Car

Keep calm if you get in trouble. If your car becomes stuck or you become lost, DON'T PANIC. Think the problem through, decide the best thing to do, and then do it slowly and carefully. If you are on a well-traveled road, indicate you are in trouble. Remember the signaling devices in your survival kit. If by some chance you overlooked that part of this booklet, try flashing your directional signals, raising the hood on your car and tying something bright to your radio antenna. Then STAY IN THE CAR! And wait for help!

The number one rule is STAY IN THE CAR! Unless there is a house or other building very close or help is in sight. If you run the engine to keep warm, do so sparingly and remember to open a window to protect yourself from carbon

monoxide poisoning. Some other tips:

- Check the exhaust pipe of your car to ensure snow has not blocked it. If this happens, you will surely get carbon monoxide in the interior compartment.
- Exercise, clap your hands, move your arms and legs vigorously or do other isometric exercises you know to keep the circulation going.
- Take turns on watch if there is more than one person. If you are alone do not go to sleep. STAY AWAKE!
- Remember your horn. If there is a firearm along, shoot three shots into the air, 10 seconds between shots and 30 minutes between volleys. (This is a universally recognized distress code among hunters and other outdoors people.)

Light Up in an Emergency

One night your car suddenly gets a flat tire and veers off to the side of the road. You flip your emergency flashers on and think the other drivers can see you. Don't be so sure. From a distance other drivers may not see your hazard lights. There is a better way to ensure that traffic can spot your disabled car from a distance. Auxiliary warning devices such as triangle reflectors or flares can protect you and your car from danger.

A car that approaches your vehicle at 60 mph requires at least 200 feet to stop. Hazard lights aren't easily seen from that distance. If your car stalls on a hill or curve, other drivers need be aware of your car from even farther away to stop in time.

Triangle reflectors are the best way to warn drivers of your stalled vehicle. A Consumer Reports study revealed that at night at a distance of 100 feet, triangles provide a clearer warning over flares, flashing lights and flashlights. However, in foggy weather flares may be your best choice.

Warning devices must be placed appropriately according to the type of road and flow of traffic. On divided highways, triangles should go behind the car. Place

the first one 10 feet from your car, the second 100 feet away and the third, at 200 feet away. On an undivided road, put one triangle 100 feet in front of your car, one 10 feet behind, and another 100 feet behind.

Towing

Winter towing is a bummer of a deal. Each year many accidents are caused by untrained people towing each other around on snowy streets and highways. The driver of the towed vehicle is at a decided disadvantage for several reasons. Usually the reason for the tow is the towed car is not running; therefore, the defroster does not run because it is dependent on the hot water from the engine. At 20-below, trying to see through an icy windshield is not an easy thing to do. Power steering and power brakes are two other mechanical conveniences found on most cars today that won't work in a non-running vehicle.

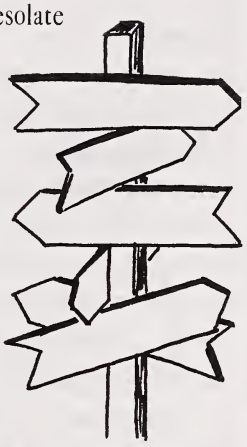
Think for a moment about being towed at 50 miles an hour down an icy road with a 10-foot tow chain, because that's all you found, trying to scrape the ice off the inside of the windshield, with poor visibility all around, no heater, very little steering, no brakes and no way to communicate with the driver of the towing vehicle.

If towing is necessary, it is recommended that it be done by an automobile dealer or commercial towing service. Commercial operators are also usually aware of state and local laws pertaining to towing. The legal aspect brings up another point. Any money you might have saved by doing your own tow can easily be offset by body shop bills and moving traffic violations.

Survival for Outdoor Activities

Montanans and tourists alike are taking to the field in increasing numbers, both on foot and horseback. Many others access the backcountry with four-wheel drive vehicles, ATVs and snowmobiles. Occasionally hunters, skiers

and other sportsmen become lost or stranded in desolate terrain in severe weather. The number one rule in the wilderness is DON'T PANIC. Don't rush to get out immediately. Many sportsmen have lost their lives because they refuse to admit to themselves and others that they got lost. They are convinced that their truck is just over the next hill. They literally run themselves to the point of exhaustion. Hypothermia sets in, and they die.



Admit that you are lost and get on with saving your life. If you can admit you are lost one hour before dark and you have the minimum survival gear, by putting that hour to good use you should suffer no more than a very uncomfortable night and a little harassment the next day.

Don't Leave Your Buddy!

Even as the rewrite of the booklet begins (November 2001), this age old cardinal rule has been ignored again - this time by two separate father and son hunting teams. As we worked the Emergency Operations Center, during one of these crisis, we were able to get aircraft up the next day, but were puzzled by the fact that the pilot could see no signal smoke. Truth was, this pair had no matches or wet matches, and no fire starter. They also were not dressed for the season and had little in the way of survival gear. Why they split up is not known at the moment, but it nearly cost both of them their lives. This story has a happy ending - both were found, although physically, they had little time left. The other story was not so happy. A boy's life was lost to hypothermia. (Hypothermia is explained later in this handbook).

Ever hear the old adages, "two heads are better than one" and "haste makes waste"? Alone or with a buddy, if you have the survival gear outlined in the next section of this handbook, there should be no need to rush to get out.

In both of these tragic cases, what originally was not a life and death situation became just that. The panic factor caused a rush to get out of the woods.

Physical exertion, exhaustion, and climatic conditions led to hypothermia. *You are lost!* Believe it or not, you're not the first people on this planet to be *lost* - so admit it and get on with saving your lives. With two or more people the chore of fire building, making camp and setting up signals should be a lot easier, not to mention the calming effect you can have on each other. As mentioned elsewhere in this booklet, Montana has an excellent search and rescue system. Nothing rallies the emergency management organization, as well as the general public, as a lost person. They will come! Believe it! They will come and find you. Your job is to concentrate on what must be done to save your life and spend as comfortable of a stay in the woods as possible. The next day, set a course of action. Increase the size of your fire so no one will miss it, or follow a drainage downhill. Most importantly-- stay together. You need each other, both psychologically as well as physically, in case one of you gets hurt or goes into hypothermia. DON'T LEAVE YOUR BUDDY!

Backpack Survival Kit

Whether you are an expert or novice outdoors person, whether you plan to be gone an hour or all day, you must be prepared to stay the night. Many of the car survival items can be transferred to the field. Your outdoors kit should be carried in a backpack and like the car kit, it can be quite extensive.

At a minimum, you should carry:

- ☐ this handbook
- ☐ matches (in a waterproof container) and lighter
- ☐ candles
- ☐ first aid kit
- ☐ lightweight tarp or plastic
- ☐ space blanket
- ☐ handsaw or hatchet
- ☐ canteen of water (U.S. Army type has a nice metal cup for heating water and cooking)

- ☐ whistle (plastic coach-type)
- ☐ signal mirror
- ☐ compass and topographical map (of little use however, if you don't know how to use them)
- ☐ commercial fire starter; #000 steel wool works great
- ☐ surgical tubing—good for drinking from streams as well as an emergency tourniquet
- ☐ all purpose knife—Swiss type is excellent
- ☐ rope
- ☐ tissue or paper towel
- ☐ high-energy food—sugar, candy, raisins, trailmix, soup, hot chocolate mix, bouillion cubes
- ☐ tape
- ☐ flashlight
- ☐ cell phone

Building a Shelter

A calm mind and a good analysis of what resources are available can result in a very adequate shelter. In timber country you are limited only to your imagination. The lean-to is most popular today and easiest to construct. Cut two "Y" poles with your hatchet or pocket knife or use two trees with long limbs for the corner poles; place a cross pole between them; and place small trees or branches from the cross pole to the ground, butt end up - small end on ground. Take the string or tape from your pack and interweave cross members for more protection and warmth. Often, a large, downed log can make a good back for part of the shelter. Take advantage of rock overhangs, a series of

dead, intertwined, downfall trees, etc. A realistic appraisal of your situation, a good imagination and a sharp hatchet can make you the envy of your neighborhood.

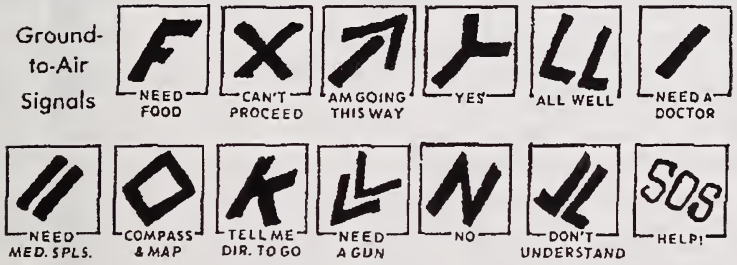
In open country, take advantage of any depression, rock pile, abandoned auto, fence, etc., for a windbreak. Snow caves can provide the warmest shelter possible. Dig your cave on the leeward (downwind) side of a drift. Pine boughs, grass and sticks are suitable to cover the bottom of shelters, but plastic bags or ground tarpaulins are the best. The more pine boughs you pile up, the more comfortable you will be.

While it is daylight, get your fire started. You will not start many fires directly from a match. Your survival kit should contain tissue paper, commercial fire starter tablets, steel wool, etc. Pine resin from the wound of a tree is a great starter. If the fire must be started on the snow, build a platform of logs or stones. Place the fire close enough to throw heat into your shelter. Use your space blanket or plastic bag against the back of your lean-to so as to reflect the heat. Once the fire is going, heat water (melt snow) in your canteen cup and heat some soup or chocolate. With a fire and something warm to drink, you can then turn your attention to improving your new home. With the time remaining, gather fuel. It takes an amazing amount to last the night.

Stay With Your Shelter

Help will come! You must believe this! Montana has one of the best and fastest reacting Search and Rescue systems in the country. Be prepared to signal. As was mentioned earlier, three gunshots, three blasts from your whistle, three ground fires, etc., are universally recognized as a distress signal. You may be spotted from the air.

In addition to your fire and its smoke, become familiar with the following ground-to-air signals:



Use natural materials to form the symbol. You can use brush, foliage of any type, rocks, or blocks of snow. In snow covered areas, tramp down the snow to form letters or symbols and fill with contrasting material such as twigs or pine boughs.

Avalanche

Snow avalanches pose a very serious threat to the unwary backcountry traveler. The first step in avalanche safety is to recognize that this potential threat exists, while at the same time realizing that with knowledge and experience one can minimize the danger. Most avalanches that injure or kill people are caused by the victims themselves or by other members of their party. Most of these accidents can be avoided.

Avalanches are complicated natural events that are the product of specific terrain, weather and snowpack conditions. They cannot be predicted with

certainty, but we can identify levels and trends in snow stability. Frequent, as well as casual, wintertime travelers in Montana's backcountry should avail themselves of an avalanche safety course. These are offered by avalanche centers, snowmobile and ski clubs, Montana Department of Fish, Wildlife & Parks, Forest Service, Park Service, and other agencies.

Southwest Montana
GALLATIN NATIONAL FOREST
Bozeman 406/587-6981

West Central Montana
LOLO & BITTERROOT NATIONAL FORESTS
Missoula 406/549-4488

Northwest Montana
FLATHEAD & KOOTENAI NATIONAL FORESTS, GLACIER NATIONAL PARK
Kalispell 406/257-8402

These advisories are also carried on the Internet at these http addresses:

www.csac.org www.avalanche.org

Avalanche centers at Bozeman, Missoula and Kalispell issue backcountry avalanche advisories for various parts of the state. These describe current weather, snow, and avalanche conditions and are offered as an aid in planning outdoor recreation and work activities. They are easily accessed by calling the above telephone numbers.

Most avalanches occur on slopes of 30–45 degrees and during or shortly after storms. During periods of rapid new snow loading, either from precipitation or wind transport, the new snow hasn't yet had time to strengthen and bond to the underlying snowpack. Rapid warming of the snowpack by sun or rain is also destabilizing and often leads to avalanching.

Every person traveling in the backcountry should carry and know how to use an avalanche transceiver, prob, and shovel. These items can save a life.

In the event of an accident, the party will need to rely upon their ability of self-rescue. Time is of the essence.

Fifty percent of totally buried avalanche victims die within the first 20-30 minutes of being buried. By the time an organized rescue party responds to an accident, the victim's chances of surviving are very low. Two-thirds of fatality victims die from suffocation, while the other third die from trauma injury.

When traveling in the backcountry and the chance of an avalanche exists, expose only one person to potential risk at a time. The remainder of the party should watch from safe locations, ready to effect a rescue should a slide occur. If a snowmobile becomes stuck on a potential avalanche slope leave the rider to free the machine alone. Should an avalanche occur, watch the victim as he is carried downslope and concentrate the search below the last seen area.

Victims caught in an avalanche need to fight for their lives. Try to stay on or near the surface of the snow by using swimming motions. If riding a snowmobile stay with the machine until it begins to roll, then get away to avoid being beaten by the machine. Skiers should discard skis and poles. As the avalanche begins to slow and come to a stop, form an air pocket in front of your face and chest using your hands and arms. At the last moment if possible, thrust a hand or foot above the snow surface. Remain calm in order to conserve oxygen and energy.

For safe travel in the backcountry:

- Become knowledgeable about avalanches and learn to recognize avalanche terrain and conditions.
- Always carry and know how to use avalanche safety equipment.
- Practice safe avalanche route selection and travel techniques.
- Have an escape plan should an avalanche occur.
- Always leave a margin for error in judgment.
- Enjoy the great Montana backcountry in winter. It offers tremendous beauty and excitement.

Winter Safety Tips for the Home

A winter storm could isolate you in your home for several days. Be prepared to be without conventional forms of heating and cooking. As mentioned earlier, keep ahead of the storm by listening to the latest warnings and bulletins on radio and television.

Then:

- Keep a battery powered radio and flashlights in working order, and maintain a stock of extra batteries.
- Maintain a supply of food that can be prepared without heating.
- Stock emergency water and cooking supplies.

- Have candles and matches available in case of power outage.
- Make sure you have sufficient heating fuel; your regular fuel sources may be cut off.
- Have available some type of emergency heating source and a sufficient supply of fuel so you can keep at least one room in your house warm enough to be livable. Kerosene heaters and wood stoves are good sources of backup heat.
- Prevent fire hazards due to overheating with coal, oil or wood burning stoves, fireplaces and furnaces. Have chimneys cleaned by a professional and inspected annually.
- Keep fire extinguishers on hand. These also need to be professionally maintained. Make sure your family knows how to use them.
- Stay indoors during a storm. If you must go outside, dress appropriately. (See below.) Avoid overexertion.
- Don't kill yourself shoveling snow! It is extremely hard work for anyone in less-than-excellent physical condition and can bring on a heart attack, which is a major cause of death during and after a storm.
- If heavy snow accumulates on your roof, you must keep your heating vent systems clear to prevent carbon monoxide poisoning.
- With advance notification of a storm, make sure your prescription medication supplies are filled.
- With advance notification, mothers, make sure you stock up on diapers, formula and wet wipes.

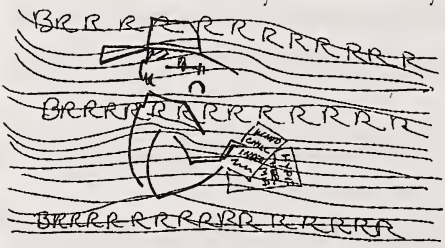
Dress to Fit the Season

If you spend much time outdoors during work or recreation, wear loose-fitting, lightweight, warm clothing in several layers. Layers of protective clothing are more effective and efficient than a single layer of tight, heavy clothing. Layers can be removed to prevent perspiring and subsequent chill, and can be replaced as you begin to feel the need for more warmth. Outer garments should be tightly woven, water-repellent and hooded. A hood or ski-type mask should protect

much of your face and cover your mouth to ensure warm breathing and to protect your lungs from extremely cold air. Mittens are better than fingered gloves.

Wind Chill Index

Strong winds and cold temperatures can make it feel much colder than it actually is. This is why there is a "wind chill" temperature. Recently, meteorologists and medical experts in the United States and Canada have revised the wind chill formula to create a more representative value of the actual cooling conditions felt on exposed human skin, and to standardize a formula to be used internationally. The standardization of the wind chill formula among meteorological communities is important so that an accurate and consistent measurement is provided and public safety is ensured. With our Canadian neighbors so close to the state, the new formula will be nearly seamless from one country to the next, although their temperature will be in Celsius, while our value is in Fahrenheit.



Wind Chill Chart

Wind (mph) \ Temperature (°F)	Calm	40	35	30	25	20	15	10	5	0	-5	-10	-15	-20	-25	-30	-35	-40	-45
5		36	31	25	19	13	7	1	-5	-11	-16	-22	-28	-34	-40	-46	-52	-57	-63
10		34	27	21	15	9	3	-4	-10	-16	-22	-28	-35	-41	-47	-53	-59	-66	-72
15		32	25	19	13	6	0	-7	-13	-19	-26	-32	-39	-45	-51	-58	-64	-71	-77
20		30	24	17	11	4	-2	-9	-15	-22	-29	-35	-42	-48	-55	-61	-68	-74	-81
25		29	23	16	9	3	-4	-11	-17	-24	-31	-37	-44	-51	-58	-64	-71	-78	-84
30		28	22	15	8	1	-5	-12	-19	-26	-33	-39	-46	-53	-60	-67	-73	-80	-87
35		28	21	14	7	0	-7	-14	-21	-27	-34	-41	-48	-55	-62	-69	-76	-82	-89
40		27	20	13	6	-1	-8	-15	-22	-29	-36	-43	-50	-57	-64	-71	-78	-84	-91
45		26	19	12	5	-2	-9	-16	-23	-30	-37	-44	-51	-58	-65	-72	-79	-86	-93
50		26	19	12	4	-3	-10	-17	-24	-31	-38	-45	-52	-60	-67	-74	-81	-88	-95
55		25	18	11	4	-3	-11	-18	-25	-32	-39	-46	-54	-61	-68	-75	-82	-89	-97
60		25	17	10	3	-4	-11	-19	-26	-33	-40	-48	-55	-62	-69	-76	-84	-91	-98

Frostbite Times: 30 minutes | 10 minutes | 5 minutes

$$\text{Wind Chill (°F)} = 35.74 + 0.6215T - 35.75(V^{0.16}) + 0.4275T(V^{0.16})$$

Where, T= Air Temperature (°F) V= Wind Speed (mph)

Effective 11/01/01

Cold Weather Injuries

Every winter many unnecessary deaths occur. Listed below are some rather chilling statistics.

Winter deaths related to snow and ice:

- About 70 percent are automobile related
- About 25 percent are people caught out in the storm
- The majority are males and over 40 years old

Winter deaths related to exposure to cold:

- 50 percent are under 60 years old
- Over 75 percent are males
- About 20 percent occur in the home

Wounds and Bleeding

Thanks to the United States Army and their Field Manual 21–76 "SURVIVAL," which serves as the source document for much of this section.

Severe bleeding from any major blood vessel in the body is extremely dangerous; combine it with the effects of sub-zero weather, and the situation rapidly becomes life threatening. Loss of one quart of blood will cause moderate shock; loss of three quarts is usually fatal. External bleeding can be classified according to its source.

ARTERIAL

Arterial blood is that which is moving away from the heart. Bright red blood flows from the wound in spurts or pulses. Because of the pressure exerted by the heart, a large quantity can be lost in a short time. It is the most serious type of bleeding. If not controlled quickly, it can be fatal.

VENOUS

Venous blood is that which is returning to the heart and is usually dark red in color. Pressure is less than from the arteries, but bleeding can still be profuse.

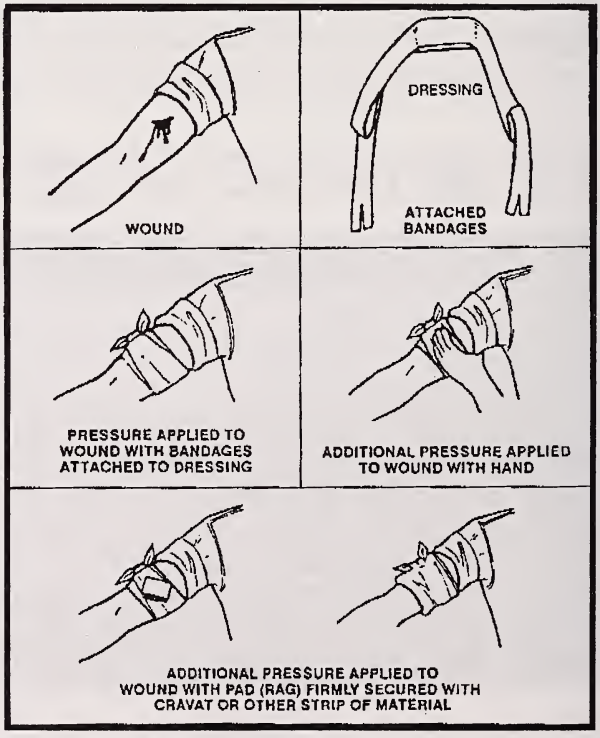
CAPILLARY

Capillaries are very small and connect the arteries and the veins. Capillary bleeding is most common and occurs in minor scrapes and cuts. Blood flow is usually slow and oozing. This type of bleeding is not normally difficult to control.

Control External Bleeding by Direct Pressure, Pressure Point Pressure, Elevation or Tourniquet.

DIRECT PRESSURE

The most effective means of controlling external bleeding is by the application of pressure directly over the wound. Ready made pressure bandages can be purchased from medical supply stores and most drugstores. Add a pressure bandage to each of the first aid kits you have assembled. The bandage has a pressure pad and two long ties. Sterile gauze with a handkerchief or other field expedient measure can be used. The key here is not to waste time looking for the perfect items. If unsterile material must be used infection can be dealt with later.


WOUND
DRESSING
ATTACHED BANDAGES
PRESSURE APPLIED TO WOUND WITH BANDAGES ATTACHED TO DRESSING
ADDITIONAL PRESSURE APPLIED TO WOUND WITH HAND
ADDITIONAL PRESSURE APPLIED TO WOUND WITH PAD (RAG) FIRMLY SECURED WITH CRAVAT OR OTHER STRIP OF MATERIAL

Firm, even pressure should be applied to the bleeding point until the bleeding stops. Alternate application of and relaxation of pressure to determine if the bleeding has stopped is not desirable. Apply steady pressure up to 30 minutes. In most cases, this is sufficient time. Once a pressure bandage has been applied, it should not be removed. If the dressing becomes blood-soaked, sufficient pressure was not generated, and additional pressure must be applied. This can be accomplished by adding pressure to the wound with the hand or with another bandage over the first. Elevation of the wounded area should be used in conjunction with the additional dressing. If no medical facility can be reached the bandage can be left in place up to two days, after which it can be removed, the wound inspected, and a smaller bandage applied.

ELEVATION OF THE WOUND

Raising an injured extremity as high above the level of the heart as possible slows blood loss by aiding the return of blood to the heart. Elevation alone will not control bleeding entirely; it must be accompanied by direct pressure over the wound.

TOURNIQUET

Use a tourniquet only when direct pressure over the bleeding point in conjunction with elevation of the extremity fails to control the bleeding. Application of direct pressure is so effective in the control of bleeding that the use of a tourniquet is rarely necessary.

⚠ *Furthermore, a tourniquet is not recommended for general use because of the following:*

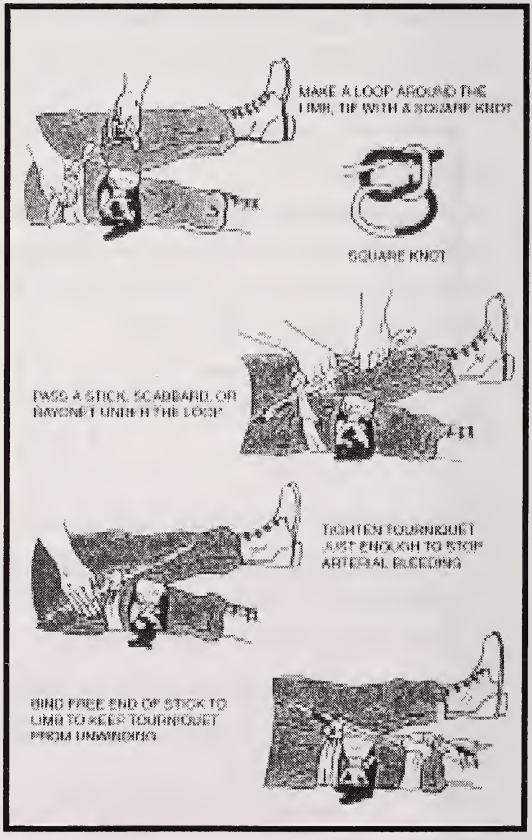
- A tourniquet, even properly applied, obstructs blood flow both to and from the wounded area, resulting in damage to all tissue. If the tourniquet is left in place too long, the damage to the tissue can progress to total gangrene with subsequent loss of the limb.
- A tourniquet may obstruct venous flow without totally obstructing arterial flow, resulting in more profuse arterial bleeding than before the tourniquet was applied.

⚠ IF YOU MUST USE A TOURNIQUET

You can improvise one from any strong, soft, pliable material such as gauze, a large handkerchief, a triangle bandage, a towel or other similar item. To minimize damage to nerves, blood vessels and other underlying tissues, the tourniquet should be 3 to 4 inches wide before it is wrapped around the extremity and at least 1 inch wide after it is tightened. Apply the tourniquet as follows:

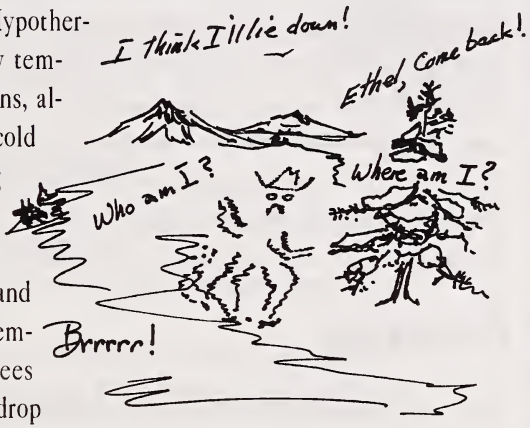
Place the tourniquet around the extremity between the wound and the heart 2 to 4 inches above the wound site. Never place it directly over the wound or over a fracture. Using a stick as a handle to tighten the tourniquet, tightening only enough to stop the flow of blood. After tightening the tourniquet, bind the free end of the stick to the limb to prevent unwinding.

After you secure the tourniquet, clean and bandage the wound. A lone survivor does not remove or release the tourniquet. If a buddy is present he or she can release the tourniquet pressure every 10 to 15 minutes for 1 to 2 minutes to let blood flow to the rest of the extremity to prevent limb loss.


MAKE A LOOP AROUND THE LIMB, TIE WITH A SQUARE KNOT
SQUARE KNOT
PASS A STICK, SCABBARD OR BAYONET UNDER THE LOOP
TIGHTEN TOURNIQUET JUST ENOUGH TO STOP ARTERIAL BLEEDING
BIND FREE END OF STICK TO LIMB TO KEEP TOURNIQUET FROM UNWINDING

Hypothermia

Commonly called **exposure**, it's known to be the number one cause of accidental death in outdoor activities. Hypothermia is the lowering of body temperature under any conditions, although moisture, wind and cold most often are the leading causes. It is compounded by a combination of improper clothing, inadequate shelter and energy depletion. If body temperature goes below 95 degrees Fahrenheit, it continues to drop at an ever-increasing rate. In a short time, the victim becomes unconscious and often the result is freezing to death.



SYMPTOMS to watch for in ourselves and companions are:

- Poor coordination—repeated stumbling, poor control of arms and legs.
- Careless attitude, decreased attention span, daze and memory lapse.
- Uncontrolled shivering, drowsiness, blurred speech, confusion.
- Weakness, slowing pace, inability to maintain muscle movement.
- Disorientation and possible hallucinations and collapse.

TREATMENT for hypothermia:

- Prevent further heat loss any way possible.
- In advanced hypothermia, the body cannot rewarm itself and must be rewarmed from external sources. (Give hot, sugary drinks if victim is conscious. Sharing body heat helps, especially inside blankets or a sleeping bag.)
- Give mouth-to-mouth resuscitation if breathing stops.
- Furnish external heat slowly. Extremely fast heating can also cause damage, so use caution.
- Recent medical guidance is not to encourage the patient to exercise.
- Do not allow the victim to drink any kind of alcohol.

Carbon Monoxide Poisoning

Carbon monoxide is a deadly, colorless and odorless gas which can be present when gasoline engines or stoves are operated in an area which is not properly ventilated, such as an automobile, tent, camper, etc. Usually there is no warning and no symptoms because carbon monoxide very subtly attacks the oxygen-carrying capability of the bloodstream. It may be recognized as dizziness, throbbing headaches or pounding pulse. You may recognize it in others as blue lips, sleepiness or muscle twitching. Fresh air is the immediate cure; in others you may have to apply artificial respiration. Prevention is proper ventilation.

Frostbite

Frostbite is a situation where ice crystals actually form in the victim's skin tissue. You can recognize it on others and maybe even yourself as grayish or yellow-white spots on the skin. Treatment is to restore warmth to the affected area, but not too rapidly. If hot water is available do not use hotter than 105 degrees. Do not rub frozen flesh or forcibly remove gloves or shoes. Above all, do not rub frozen area with snow.

Snow Blindness

Snow blindness is caused by unprotected eye exposure to the glare off snow and may be compounded by high altitude. Treatment of snow blindness is cold compresses, aspirin and bandages over the eyes for 16–20 hours. Prevention is the wearing of protective glasses.

Sunburn

Sunburn can occur in snow country, especially high altitude. The injury can be very painful but responds well to treatment and time. Prevention is approved suntan lotions or sunscreens. Cover as much exposed skin as possible while outdoors.

Protection for Pets

WHAT TO DO WITH PETS

Many of us consider pets part of the family. Thanks to the Ralston Purina Company for providing these tips.

Winter Pet Care Tips

Winter poses special risks to pets. Give your pet a safer, healthier cold weather season by following these tips:

- Keep indoor pets in a dry, warm area free of drafts. Elevate your pet's bed off the floor.
- Provide outdoor dogs or cats with a dry, insulated pet house or shelter out of the wind. Staying warm demands extra calories, so feed your pet accordingly whenever temperatures drop. Bring your pet inside if the wind chill or other weather conditions become severe.
- Remove ice, salt and caked mud from your pet's paws and coat at once. Contact your veterinarian immediately if you suspect your pet has frostbite. Frostbitten skin may turn reddish, white or gray, and it may be scaly or sloughing.
- Cats and kittens often nap on car engines. Knock on the hood or honk the horn; then wait a few minutes before starting the car.
- Pets like the smell and taste of antifreeze, but even a small amount can kill them. Thoroughly clean up spills at once. Tightly close containers and store them where pets cannot get to them.
- Holiday paraphernalia can hurt pets. Cover or tack down electrical cords. Keep tinsel and glass ornaments out of reach. Read warnings on items like spray-on snow. Never put ribbon around a pet's neck or allow it to play with plastic or foil wrappings or six-pack beverage holders.
- Keep your pet on its regular diet. Holiday treats, such as chocolate and bones, can be harmful or toxic.
- Many plants—including Christmas rose, holly, mistletoe, philodendron and dieffenbachia—are toxic to pets. Keep them out of your pet's reach.
- Always have fresh, clean water available.

Courtesy of your veterinarian and Ralston Purina Company

Protection for Livestock

Blizzards take a terrible toll on livestock. For both humane and economic reasons, stockmen should take precautions in advance of severe winter storms.

- Move livestock, especially young livestock, into sheltered areas. Shelter belts, properly oriented and laid out, provide better protection for range cattle than shed-type shelters.
- Sheds may cause cattle to overcrowd, with consequent overheating and respiratory disorders. Cattle running in brush country or lowlands with timber usually survive all right if feed, water and salt are available.
- Well-fed stock with a reserve nutrition supply will weather a blizzard much better than a herd which is fed only the minimum. It is recommended that stockmen check with their local county agent to determine the correct feed portion to ensure an adequate reserve.
- Haul extra feed to feeding areas before the storm arrives. Storm duration is the largest determinant of livestock losses. If the storm lasts more than 48 hours, emergency feed methods may be required. Concentrates in the form of pellets or cakes are excellent for providing emergency rations.
- Autopsies of cattle killed by winter storms have shown the majority of deaths to be caused by dehydration, not cold or suffocation. Because cattle cannot eat enough snow to satisfy their water intake, stockmen are advised to use water tank heaters to provide livestock with water.
- After a blizzard of several days duration, cattle that have been without salt frequently suffer from salt starvation. Take care also that stock do not get too much salt during the recovery period.

Hazardous Materials Incident Tips

Montana highways can be dangerous, icy thoroughfares during the winter. The chance of encountering a hazardous materials transportation incident greatly increases during winter-storm months. Here are a few personal safety tips to help keep you healthy.

- Do not approach hazardous materials incidents unless you have been professionally trained to do so. You may become a victim!
- Report hazardous materials incidents by calling 911.
- Ask your county DES Coordinator about Hazardous Materials Awareness training in your county.

Remember!
They are called
"Hazardous Materials"
because there is a hazard!

Thanks to the following agencies for the information they shared with us during the research and production of this handbook.

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  - Wyoming
  - Washington

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